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MEMORANDUM FOR: Chief, Technical Services Group, NPIC

ATTENTION : Chief, Technical Operations Staff, TSG/NPIC

SUBJECT : Monthly Report for November 1972

A. SIGNIFICANT ITEMS OF INTEREST FOR NOVEMBER 1972:

1. 120X Capability for Zoom [ ] The new 15X eyepiece is essentially complete and due to be delivered in December. It is reported to have high light transmission, flat field, low distortion, and a field-of-view greater than the present 10X eyepieces. Assembly of the 3X objective lens is underway and it is due to be delivered in early January.

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2. Scan & Search PI Station [ ] The training of IEG personnel and the operational testing of the SSPIS was completed on 13 November 1972. The instrument has been turned over to IEG for operational use.

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3. Automatic Focus System, Phase II [ ] Preliminary PI search tests on operational film were performed [ ] of IEG. He has informally reported finding considerable improvement of non-stereo scan and search with the automatic focus breadboard--his detailed report will be issued shortly.

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Declass Review by NIMA/DOD

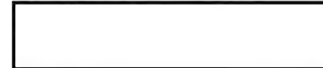
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§ 52(1), (2), (3) or (4) (circle one or more)
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IMPOSSIBLE TO DETERMINE
(unless impossible, insert date or event)

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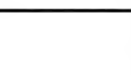
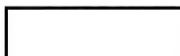


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
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4. 15X Binocular Magnifier  Late delivery of glass blanks has extended component manufacturing to 29 November. An optical bench test, assembly, and predelivery testing are scheduled to occur by 13 December.



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5. High Capacity Processor  Arrangements have been made to have the dry silver High Capacity Processor tested and evaluated  in March 1973. RED and Air Force personnel will perform pre-acceptance tests at the  plant in January 1973.


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6.  Stereocomparator (Production Model)  The fabrication is 50% complete. PWD and RED personnel visited the  plant on 15 November to review progress. One of the items discussed was a modification to introduce a projected reticle system.

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7. Precise Mensuration, Phase III   is fabricating a projected reticle and an illuminated reticle test fixture on which various types of projected and illuminated reticles will be tested.

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8. Mapholder  The modified mapholder was delivered on 21 November and is undergoing operational evaluation.

9. ON Inspection Table  Preliminary acceptance test reports indicate that sturdier spindles and higher capacity switches are necessary. The contractor is studying the problem.

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10. EXPAND Technical Task Team Report (C/RED/DB). The manuscript for the fifth annual Consolidated RED Project List was completed the week of 20 November. It will be printed and distributed to the community by mid-December 1972.

11. Closed Circuit TV System for IEG/PMP (RED/SAB). Purchase requests for equipment are being compiled and it is anticipated that all orders will be placed by 8 December. ORD will lend NPIC part of the equipment: one TV camera and one monitor.

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12. Ground Coverage Display [REDACTED] Phase I [REDACTED] efforts have progressed to the point where it is possible to plan for [REDACTED] to begin Phase II work about 1 January 1973. Completion of the contract should occur during the latter part of June.

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13. PI Survey Teams (RED/DB). The in-house survey of NPIC by RED personnel to determine interpreter's working procedures and equipment needs is well underway. DIA, IAS and SPAD have been interviewed, and IEG is scheduled next.

14. Mensuration Parameters File [REDACTED] The work has been completed by the contractor and the final report is being edited by PS/PMB. The results will be published as an NPIC report.

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19. Feasibility Study for Automated Image Assessment [REDACTED] Eleven

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pieces of conventional imagery were sent [REDACTED] on 26 October. These same materials are currently being digitized and reconstructed [REDACTED]

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[REDACTED] and should be available for delivery

[REDACTED] on or about 1 January 1973. There is some doubt whether this material will be a true simulation of the output of the new system.

20. Lenticular Rear Projection Screen [REDACTED] The elliptical

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master ruling for the 30" x 30" screen is scheduled for completion in late December. It is now anticipated that delivery of the two screens will occur early in March 1973.

21. Wide-Field, High-Power, Anamorphic Stereoviewer [REDACTED] Align-

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ment of the optical system is progressing well. Resolution readings (end of Milestone 2 bench test) are scheduled for 5 and 6 December.

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22. Five Year Plan (PED/SIS). TSG/RED's input for the FY-1975 - FY-1979 Program Plan was completed.

23. Imagery Interpretation Research Program [ ] The PAR for the proposed 1973 program was completed, approved at TSG level and forwarded to the Planning Staff. The PI Search Training Course was given to four IEG PI's during November. Twelve other PI's also participated in the evaluation of this new course. The final report on this task is nearing completion and will be delivered in late December.

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24. [ ] Implementation Plan (In-House). A preliminary report covering the information gathered to date on [ ] Dry Silver and Dry Diazo Implementation Plan has been written. This report covers the material properties and does not address any of the other problems that must be resolved before these materials are put into operational use.

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25. Color Technology Support, [ ] Most of the problems related to the emulsion damage on the [ ] high resolution color microfilm found during processing have been eliminated, and the previously planned operational test will be conducted during the month of December.

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26. Color Training (RED/SIS). A two-hour course on the Psychophysics of Color Perception is nearing completion. The course is scheduled for presentation to groups of Center personnel in early January.

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27. Narrowband Color Viewer Evaluation (NBCV) (RED/SIS). During the course of the evaluation of the prototype NBCV, several Zoom [ ] were tested for their ability to transmit broadband and narrowband illumination. Unexpectedly, large differences in their ability to transmit light have caused the further evaluation of the NBCV to be held in abeyance until three scopes with comparable light transmittance characteristics can be located.

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28. Spectral Irradiation Produced by Electronic Flash (RED/RE). Consultation services were provided to TSG/ESD and SS/SE on the measurement of spectroradiometric and related characteristics of a photographic strobe unit employed by the Center.

29. FY-73 R&D Program (RED/SIS). During November the following items were surfaced and will affect the orderly progression of the FY-73 R&D program and operating budget:

a. Very Hi Resolution Printer formerly programmed for January obligation will be delayed pending the results of a [ ] project of a related nature [ ]

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b. The modification of the [ ] Printer to accept unconventional material has been tabled until the Dry Silver Processor tests are complete [ ]

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c. Anticipate the need for an additional [ ] in February or March to modify the [ ] Processor.

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d. Will need an additional [ ] to develop Improved Fiber Optics Cables for PHD. Programmed for March.

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e. Will need an additional [ ] in December for a [ ]  
15X Eyepiece for the Zoom [ ]

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f. Another [ ] needed in January to fund the PI Stage Reticle.

g. An additional [ ] for a follow-on to the Object Recognition Guide. PAR now in process.

h. Another [ ] Collateral Camera Tests

[ ]

i. Phase I of the Materials Handling Study will expend [ ]

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of the [ ] total allocation.

j. The Viewing Systems for Unconventional Imagery project implementation will be delayed at least through January 1973.

k. The Conventional Exploitation Equipment project has been delayed and is now programmed for April 1973.

l. The Synergistic Effects of IP/SLR project has been delayed until June 1973.

m. The Simulation Model Design project funded at [ ] has been suspended.

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30. Digital Image Manipulation Hardware [ ] The final delivery of new hardware built [ ]

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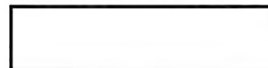
[ ] was made on 8 November [ ] personnel continued to debug and test hardware components during the month.

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

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31. Analysis of Software/Hardware  Twenty  
copies of the  report documenting  hardware were delivered this  
month.

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32. Photoscience Support  Two work  
orders were authorized under this program. One involved an evaluation of  
viscous photographic developers while the other involved an investigation  
of a special chemistry to reduce contrast in very high resolution, silver  
halide film. Results of these investigations are due in early 1973.



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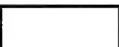
33. Minimum Contact Densitometer  The Center's  
automated color densitometer was delivered and is being checked out.

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34. Colorimetric Image Correction (RED/RB). Project planning  
on Colorimetric Image Correction was continued with the outlines of RED,  
AID, and contractor support defined.

35. Abbreviated Color Rendering Index Standard (RED/RB). A pre-  
liminary outline of an Abbreviated Color Rendering Index Standard for  
microscope transmission was prepared.

36.  Software (ORD). Two PI operational problems were pro-  
cessed at ORD using the  software. Additionally, two more PI requests  
were received in RB.

37.  Software (RED/RB). AID and RED/RB personnel continued  
assembling and debugging new  software.

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33. DDP/TSD Support (RED/RB). A [ ] lens was tested in terms of high contrast resolution for TSD. The results indicate that the lens is inferior to existing, commercially available lenses.

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40. Diagnostic Computer Program [ ] Documentation has been received and distributed. [ ] submitted a claim of [ ] for time lost because of the [ ] computer downtime.

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41. Engineering Support for Target Indexing Device [ ] Cooling air was supplied through back of the TID [ ] computer. Air conditioning deficiency is being corrected in room 2N-147. Two doors were removed from the TID; baffles and shrouds were installed to reduce air turbulence.

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42. Film Tearing Problem (RED/RB). A number of rolls of original negative material have been torn when rapidly unwound due to points where the film was stuck together. The problem appears to occur mainly in ON material, especially film which has passed through liquid gate printing. In a simulated test it was found that the liquid gate liquid did not

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cause sticking, but a drop of water caused sticking great enough to result in a tear. The most likely source of water is the compressed air used to blow the liquid gate fluid from the film. The filter in the air line probably needs replacing with a more sophisticated set of filters. Problems with contaminated compressed air have been noted in other parts of the Center.

## B. MEETINGS, BRIEFINGS, ETC.

## 1. Automated Exploitation Techniques

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7 November 1972 to review capabilities and to discuss tentative areas of work under the proposed no-cost R&D agreement. Two Task Team meetings were conducted in TSG/RED to discuss capabilities and related R&D tasks.

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## 2. Optical Power Spectrum.

briefed

on the current status of the OPS contract and areas of interest for future research and applications.

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## 3. met with

ORD, on 17 November to discuss the Program and Image Processing Panel Report.

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## 4. Image Science Research. On 8 November 1972,

briefed

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proposed development objective for Image Science Research. Also in attendance [redacted]

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5. New Generation Microdensitometer. [redacted] represented RED at a series of meetings [redacted] to assist in proposal evaluation of a new generation microdensitometer which the Air Force is considering.

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6. Resolution Targets. [redacted] briefed RED, APSD, and FSD personnel on new aspects and problems of conventional resolution target testing, and the program which he proposes to help resolve these difficulties.

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7. Offutt PI Class. [redacted] briefed the Offutt PI Class on 6 November 1972, and the DIA Senior Intelligence Course on 13 November.

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8. [redacted] Seminar. [redacted] Tutorial Seminar on Color Theory and Applications.

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9. TID. On 21 November [redacted] [redacted] attended a meeting to discuss feasibility of using TID for production use by DIA. The conclusion was that the TID could not be used without extensive modification which would equal cost of a new model.

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10. TID. On 15 November, C/RB et al. briefed [redacted] on the TID. The TID was demonstrated in a "single shot mode", where decisions are displayed on the panel. On 29 November DCh/TSG and the Special Assistant/TSG were given a similar demonstration.

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C. D.O.'s, PROPOSALS, AND PARS

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1. Advanced Photometer [REDACTED] A proposal has been received to develop a new microscope sensor head for the previously developed photometer.

2. UV State-of-the-Art Review [REDACTED] The final report on this project was delivered during this reporting period.

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3. Feature Analysis Comparison and Evaluation Library [REDACTED] proposal for implementation of computer programs developed under DPDS on the [REDACTED] was received. This improved program package is called FACEL for Feature Analysis Comparison and Evaluation Library.

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D. PERSONNEL

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[REDACTED]

E. SIGNIFICANT ITEMS FOR DECEMBER:

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1. [REDACTED] Model Photography will be delivered to RB.
2. Work will begin on the experimental outline of the Color Difference Study.

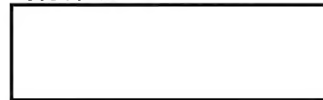
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4.  work out

the details of the briefing for the OPS contract.

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5.  hardware  interface for  9-track tape

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deck) will be delivered and debugged.

6. TID to be notballed on 31 December 1972.

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Deputy Chief  
Research & Engineering Division, TSG/NPIC

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